AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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What Is Most Needed in American Dyestuffs?

Manufacturers in every branch of industry are guided most by the laws of supply and demand. As soon as the war conditions caused a shortage of dyestuffs the first call was for dyestuffs, and all know how some mills bought anything that was offered regardless of their need for it or its quality. Small factories sprang up and turned out "stuff that would dye" rather than "dyestuff." The remnants of German dyes that were left over here and there were bought up and speculated with by anyone who could tell a blue from a pink. Now the last of these old remnants are finding their ultimate consumers and the all-American dye is paramount. A few weeks ago we reviewed some of the work of the small American manufacturer and we made full allowance for the difficulties that were inevitable. There are other difficulties that cause worry and dissatisfaction among customers, and these are avoidable if they are handled properly.

Lack of uniformity of the product at the factory is due to two principal causes —the variation in raw material and the meddling with the process. Uniformity in raw material can be had in only one way, which is by buying a large stock at a time and not getting it from time to time from every broker who offers a concession of a slight decrease in price. It is difficult at times to obtain as much as is needed, for everyone fears a falling market on account of increased production and hesitates at taking a chance. The next precaution is to maintain a laboratory and make tests. To those outside of the industry this may sound like unnecessary advice, but it is incredible how many places are run without proper chemical control of the raw material.

Meddling with the process consists mostly in experimenting with full sized batches instead of on a small scale. The large companies in this country as in Europe, know the necessity of their research laboratories because all real progress that has ever been made can be traced to them. It is claimed that there is a scarcity of chemists in the United States, although there is no scarcity of graduates in chemistry. This is easily explained, for when a man is graduated at college he still needs much practical hard work in order to develop his ability to think and act right in an emergency. There has never been much opportunity for our young chemists to get acquainted with dyestuff manufacturing, and so the business is overrun with men who claim to have been the chief chemist of the Badische or Cassella factories and who have the process of all the colors ever made. As a fact, all large factories are much specialized and one man is not used to supervise several departments; moreover it is hardly possible that any chemist who had any position of responsibility and was entrusted with the latest processes would be over here hunting for a position. Nevertheless many of them succeeded in getting financial backing, and some are even operating today. Between the young inexperienced men and the professional swindlers masquerading as chemists, those who have furnished the capital would have fared badly if it had not been for the condition of the business that allowed them to make large

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profits on "stuff that would dye." Now is the time to take account of stock and decide on a new policy for the future. If the greatest anxiety is for a large yield, realize for once that the best way to accomplish this is to have the reactions proceed under the most favorable conditions and eliminate all wastes, but never call a batch containing a high proportion of by-products and insoluble matter a good yield. The consumer has seen some lots of the same product free from the impurities, and he is going to require it in all cases even if it costs a little more. We ran for a while on Malachite Green Hydrochloride, but since a few lots of the Zinc double Oxalate have been made here and many of the solubility troubles corrected, it is going to be very hard to continue to do business with the Hydrochloride. Fuchsine by the old process is giving way to that made by the new Fuchsine process. More careful and efficient filtering is now necessary and throughout the works of the smaller manufacturer greater skill and care is demanded each day not only to maintain business against competition at present but in order to be able to remain a factor after the cessation of military hostilities and the commencement of commercial war.

We want to see all the factories now in the field continue in business, but we know that this lies in their own hands. There are going to be several large corporations fighting each other for a time, possibly the usual gentlemen's agreement, possibly a complete forgiveness of our present foes, and the small factory will have a very lively fight for existence. Now is the time to prepare. Other industries have found associations profitable and the few suspicions of petty jealousies that threatened at first soon disappeared when the members became better acquainted. There are many common interests that call for centralization, there is need for concerted action on the tariff and the only hope of eliminating disastrous internal competition is by adopting the same tactics as the German manufacturers used before the war and which they have reinforced since then. Such an association would make possible the control of raw material and provide for research where the individual members might not consider it profitable.

This association proposal has been announced but has not yet assumed definite form. It has many who are opposed to it, but we feel that it is to the interest of the American manufacturer from every point of view, and we propose to consider every argument against it as strictly pro-German propaganda.

A Statement Regarding the Conference of Dyestuff Manufacturers

We have received so many inquiries from dyestuff manufacturers regarding the conference to be held in New York City during the month of January, that we have personally interviewed Mr. H. Gardner McKerrow and his statement follows:

"The severance of my connections with the Marden, Orth & Hastings Co. will not affect the arrangements for the forthcoming conference to be held in New York City in January next for considering ways and means for standardizing American colors.

"Arrangements for this conference are proceeding rapidly, and Mr. McKerrow will make a statement to those firms who have expressed their willingness to co-operate in this movement at an early date.

"Something over two hundred letters have been received from dyestuffs manufacturers and responsible dealers, expressing their intention to take part in this conference, and it is hoped that the result of it will be an interchange of ideas which will permit of the establishment of a well conceived permanent plan.

"Certain departments of the government have expressed their approval of this movement and will have representatives at the conference, among them being one from the Tariff Commission.

"It is hoped that this conference may be held in the lecture theatre of the Chemists' Club, but final arrangements for this have not yet been completed, and failing the availability of this location, some other central point will be chosen.

(Signed) "H. Gardner McKerrow."

Conservation of Potash

Conservation of potash along with food and fuel, is urged in a Department of Agriculture report to-day, which shows that betwen 71,000 and 75,000 tons of available potash, about one-third of the quantity normally consumed in the United States, exists in the dust passing through or retained in the flues of the cement plants of the country.

The report says that by increasing the percentage of potash volatilized, by the addition of substances which will not affect the quality of the cement, the recoverable potash in flue dust can be increased to more than 100,000 tons annually, or nearly one-half of the country's normal consumption.

The Situation in Dyestuffs

From information gained from several manufacturers of dyes we find that there is a somewhat firmer undertone in dyestuffs. There has been no particular color upon which activity has concentrated, as was the case a short time ago.

Taken as a whole, the volume of business seems to be encouraging and good prices have prevailed. There are many pleasing announcements from manufacturers who have this week placed new colors on the market.

The situation in the general market for coal-tar derivatives, according to one authority, seems to center on toluol and phenol.

There is much speculation as to the extent of the government's demand on the products and the situation, in regard to supply, seems to be rather tense.

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question—What is Rhodamine Substitute and who makes it?

Answer—This is not a dyestuff in good standing but one of the makeshifts of the wily brokers. Several products of this name have come to our attention, one being simply reduced Safranine. Another was Phloxine and another had no resemblance to Rhodamine except in the shade of the powder. There is a dyestuff which would be more than worthy of the name if it were not really better in some respects; namely, Xylene Red, made by Sandoz ot Basle. This is an acid dye about half the strength of Rhodamine B (single), which dyes very level and is quite fast to light and matches Rhodamine B in shade. Some lots of it have been offered lately, but we cannot say whether it is a pre-war remnant or is still being made in Switzerland.

Question—What are the best dyes for Jute burlap that are obtainable at the present time?

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Answer—The most common colors for jute are the basic dyes, of which a fairly large line is obtainable at present. They are dyed from a hot but not boiling bath containing alum. The greater number of direct cotton colors are also used, but the shades are not so brilliant. The best colors however are such acid dyes as will dye vegetable fibres from an alum bath. Fast red gives a better red on jute than any other class of dyestuff. Azo Yellow, Wool Orange, Metanil Yellow are excellent. We cannot now obtain Soluble Blue to use alone and with the yellow for greens, but it is likely that some will soon be on the market.

Question—What is the fast bright red that is being used on the cotton flags?

Answer—Practically all of the cotton flags one sees at present are not dyed but printed. Nearly all of the red color is Para Red. This is not sold as a finished dyestuff but in the form of intermediates. The cloth is first printed with a preparation of Beta Naphthol and Caustic Soda and dried in the dark, then run through a bath containing Paranitraniline diazotized by the action of Nitrite of Soda and acid, when the color develops instantly. There is plenty of these products on the market but dyers seldom use them, the bulk going to printers of calico and color lace makers.

Question—Which class of dyestuff is most suitable for staining white cotton to resemble Egyptian cotton or to make lace an ecru shade?

Answer—The most practical way of arriving at this result without any danger of unevenness, which is the greatest trouble with most dyes, is to use instead of coal-tar products an extract made from Chicory or Coffee essence. This has been used by the French lace makers for a long time and the results are both fast to washing and free from streaks.

Question—What is the black sediment that settles out of a solution of concentrated Sodium Sulphide, and will it have any effect on a dyeing made in a bath containing it?

Answer—The sediment is most finely divided Carbon and is devoid of any chemical action whatever. Even with the lighter sulphur colors it does no harm, as it does not adhere to the fibre but washes out quite readily.

To Manufacture Artificial Silk

Philadelphia, Pa.—The Art Silk Co. of America, recently noted as incorporated with a capital of $2,500,000, it is stated has perfected a process for the manufacture of artificial silk from cotton linters. The plant for this company will be located in Philadelphia, and negotiations are about completed for the necessary building which will be announced in the near future. The process has been developed under the direction of the two Swiss chemists, who have been operating an experimental plant in the building occupied by Van Straaten & Harvey, 1815 Bristol St., Wayne Junction, Philadelphia, and for some time past have been producing artificial silk on a commercial scale. The opening of the new plant will, therefore, be an expansion, and the initial output, it is stated, will be 1,000 pounds weekly with further expansion as rapidly as the equipment and organization can be developed. A number of Philadelphia manufacturers are interested in the project.

German Dye Trade Needs Capital

The capital of the foremost aniline dyes companies of Germany have been largely increased. The amount of this capital represents a sum which can only be compared with the capital of the great financial institutions and the mining group. This development in the German dye industry was believed to indicate the determination of the German interests to maintain after the war a monopoly of the dye trade.

Chemical Development in Italy

The development which has taken place in the chemical industry in Italy during the war has practically all been the result of urgent necessity. Italy was thrown on her own resources and it was a case of quick development or perish; she appears to have succeeded very well. It is reported that 170 million lire ($35,000,000) is invested in the chemical industry in Italy to-day and that one-third is given over to the manufacture of pharmaceuticals, one-fourth to electrochemicals and the balance to fertilizing chemicals.

Standardization of Dyestuffs

An outline of the proposed National Dyestuff Association which appeared in a recent issue of *Drug and Chemical Markets*:

The initial steps having been taken toward establishing a National Dyestuffs Association with the standardization of American dyes as one of its objects, it will be useful to emphasize what such an important undertaking involves.

Standards define measure, quantity and quality. They seek to determine characteristics which may be measured as accurately as possible, and by comparing the properties of an unknown with those of a substance known to be satisfactory from service performed, a rational, fair basis for valuation is obtained.

The importance of standards is well known, and that we may have reliable and satisfactory ones, organizations are at work in many fields. The Bureau of Standards at Washington, chiefly concerns itself with the creation of new, reliable standards, checking measurements and testing materials, besides devising new methods for determining the properties of materials. The American Society for Testing Materials is carrying on important work principally in the fields of iron and steel, cement and other structural materials, paints, protection coatings, etc. This work is done through a committee of the Society, composed of manufacturers, consumers and disinterested consulting chemists.

First standards are always measures of quantity. With refinements in manufacture, practice of adulteration or specialization in uses, quality measurements increase in importance. Thus modern tool steels must answer specifications to within 1/10 of a per cent. in content of certain elements, and even structural shapes, rails and bars bought in thousand ton lots are well standardized for their special uses.

Dyes long since advanced to the stage when quality standards are essential, and yet there has been a remarkable absence of them. We are reminded of a somewhat similar condition early in the history of lubrication when "special oils" were made up for each inquiry and of course at special prices. Even now with standardized lubrication many users know so much about their requirements that they get along without specifications, and pay and pay and pay.

The first step in the proposed work on dyes should be the standardization of the nomenclature. It is recognized that this is no easy task. The true chemical names of such organic compounds are not well suited to a compact catalogue, nor are they easy to remember or pronounce. On the other hand, few other articles of commerce are so universally given names that convey so little information as to their real nature. Even furs have names that stand for a quality, though no such animal as the name indicates may exist. The mystery with which the dye industry has been surrounded doubtless is accountable for the confusion of names. Each manufacturer has invented his own names, and there is little to indicate the corresponding dye in the catalogue of another. Let us then have standard nomenclature even if some committee has to analyze the dye and publish its real chemical name together with a standardized trade designation.

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Definitions are generally troublesome, so that early in the work terms should be properly defined so that future specifications will not be ambiguous. This is unusually important where expressions peculiar to the dye house are concerned, trade idioms and even dyers' slang.

Since standards depend upon measured properties, those to be put into specifications should be discussed and those capable of the most accurate determination chosen at the start. These trial specifications may be amplified later as our knowledge grows, until a complete list of the characteristics can be included. Tests are known for determining the fastness or resistance to light, the action of various soaps, "cross dyeing," or acid, the effect of alkali and of bleaching agents. The influence of perspiration, of weather and of heat may be determined as well as of urine and water spotting. To know the resistance to rubbing or "crocking" is important, and the effect of the various sizing processes should be ascertained. Mud spotting is likewise important, bearing in mind the fact that there are many kinds of mud, and that city and country muds are usually decidedly different. Whether the dyestuff has "level dyeing" properties is another feature, and its freedom from adulteration is very important. And in all these tests one must have clearly in mind the uses to which the dye is to be put.

Now the whole plan falls through and more harm than good results unless we can agree on *the* way to conduct these tests. Lawsuits involving fortunes have resulted in other chemical fields because of a disagreement in method. For example, some years ago there was $30,000 involved in a suit over the content of phosphorous in an iron ore shipment. The difference in the amount found by the laboratory of the consignor and of the consignee was wholly a matter of method. Methods must first of all be capable of reasonable accuracy. Where possible, they should allow rapid determinations, and should be as simple as they can be made. Rapid methods must be compared with well known tedious ones, and where nature's work is to be imitated, the results must be standardized. For instance, ultra-violet light produces the fading action caused by the sun and affords a quick method for determining fastness to light, but we do not know yet how many minutes under ultra-violet light is equal to the average month of sunlight in each of the four seasons.

And while we are standardizing methods for standardizing dyes, why not standardize the use of dyes? Perhaps no one thing has helped the German dye propaganda more than the tendency of dyers to get out the required shade with any dye at hand regardless of whether it was made for the purpose or not. Of course, American dyes are poor under such circumstances. Ever try blacking shoes with German white polish?

The National Dyestuffs Association is about to undertake important work. It involves a lot of very careful research and complete co-operation among its members, each man being willing to do that for which he is best fitted. The project has need for every diversified talent, and we have indicated that sufficient questions are awaiting solution to keep a large membership engaged for considerable time. It is surely worth doing.

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Does America Want American Dyes?

If twenty-five people were asked this question no doubt twenty-five voices would immediately exclaim, "Certainly we want American-Made dyes for we must never again be dependent upon Germany."

This answer would indeed sound most encouraging to the manufacturer and he would invest many more thousands of dollars in equipping a plant just because, "Never again must we be dependent upon Germany."

We wonder if each person questioned would be willing to help in making the industry a success.

The people directly responsible for the industries establishment are the manufacturers, the consumers of their product and the Government.

When there is a spirit of co-operation and understanding between manufac turer, consumer and Government then can we educate the purchaser of fabrics.

The Manufacturer

We all know the enormous amount of capital necessary to establish a plant for the manufacture of dyestuffs.

We know that there are many companies who have spent and are spending, huge sums to establish the industry and to them credit is due.

The quality of the colors now being placed on the market by certain companies, is all that can be desired. Other colors are not up to the standard, that is necessary if the industry is to expand.

The formation of the society recently proposed, and the establishment of a chemical court of appraisal where standards can be set and of necessity be maintained, would do much toward bettering conditions in the industry.

The manufacturers realize that the future means a hard battle for commercial supremacy and immediate preparation is necessary for protection.

When a meeting is called for the discussion of conditions in the industry there should be a ready response from each manufacturer, for surely no harm can come and certainly some good will result.

Co-operation, friendly feeling, maintenance of quality and consumer protection are of vital importance, so let us not hesitate until we are swept away by a flood of commercial competition.

The Consumers

The consumers of dyestuffs and chemicals want the industry to succeed.

It is unnecessary to outline the reasons for this, but what is necessary is to help the consumer to help himself.

This can be done only by the formation of a co-operative body which could be known as the National Dyestuff Association. Each member of this N. D. A. would be compelled to maintain a certain standard for his products and the consumer would be protected when he purchased from a member of the N. D. A.

You as a consumer should do all in your power to stimulate enthusiasm among manufacturers for certainly it is of vital importance to you to have co-operation and not antagonism as now exists in some instances.

The Purchaser of Fabrics

Would you be willing to look for an N. D. A. label on articles you purchase if you were thoroughly convinced that American-Made dyes were good?

If the propaganda which you have listened to month after month were proven to be false we feel that you would look for the N. D. A. label if for nothing else than you own protection.

Let us hope that co-operation of manufacturers may mean the establishment of a standard of quality which may bring credit to America.

The Government

Many manufacturers claim that the Government has been slow in giving them protection, but perhaps the fault lies more with them than with the Government.

When is is evident to the layman that a spirit of co-operation exists in the industry, the Government will surely respond.

Unity of manufacturers in the maintenance of quality should be paramount, and when this is attained the Government will not fail us.

If you are interested and want to give us any sugestions we might bring them to the attention of the manufacturers at the first meeting.

LINEN DYEING

(*Continued from last week*)

Dyers should pay more attention to these preventative treatments, as owing to the enormous cost of labor, steam and coloring and finishing materials, unless the maximum output is realized firms can hardly exist.

After the washing the goods are entered into the dyebath, using 4 to 5 per cent logwood, 2 per cent quercitron bark to sufficient water. The goods are entered at blood heat, and, after two passages, steam is turned on and the goods are worked till the bath is boiling and then given about two passages after the steam is turned off. In the cooling bath, but **60 to 80 minutes** is usually required for a 500 yards' batch of goods. The writer understands that some firms are now replacing one-fifth of the logwood with ferrous sulphate (copperas) owing to the heavy price of the wood.

The goods are now allowed to lie a few hours before proceeding with the next operation. Except in cases where they are to be given a dry, non-beetled finish, they must have a few passages in a 4 per cent chrome bath to fix the color. If goods are dried without chroming, the color comes off in dust, and destroys all it comes in contact. The dyeing then takes an unpleasant reddish hue. Where the goods are to be given a high-beetled finish, the chroming is not necessary, as as the goods are water squeezed, one-fourth dried, starched according to finish required, and sent to the baths in the wet state. The starch holds the color, and when the goods become dry with constant beetling, the color will not dust off.

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A few examples of the methods used for dyeing various shades before aniline colors were much known will be useful, as under present conditions many firms have reverted to these old methods. The goods must be creamed before commencing the dyeing operations. A magenta shade is dyed by working the goods for 30 minutes in a 15 per cent bath of sumach at 140 deg. F., next for 30 minutes in a 10 per cent bath of stannate of soda at 140 to 160 deg. F., then adding ½ per cent magenta crystals to the dye-bath, working for 15 minutes at 120 deg. F., washing well in water at about 60 deg. F., and drying.

Red can be obtained by scalding the goods in a 10 per cent bath of sumach, then working for 30 minutes in a 5 per cent bath of red spirits at 160 deg. F., then for 30 minutes in 10 per cent limawood and 2 per cent fustic at 160 deg. F., washing well and drying. A nankeen or buff shade is obtained by working the goods in a 5 per cent solution of copperas at 160 deg. F., for 40 minutes, then enter goods into a cold solution of lime water of 1½ to 2 deg. Tw., working for 30 minutes and exposing to the air. To get an even and level shade, the easiest way is to have a long rack, say, 20 ft., with a winch at each end; 3 or 4 ends are sufficient. This shade is very fast, and a weak sulphuric acid sour improves it greatly.

These recipes can also be applied to cotton goods, but in this case to get a uniform shade the goods must be given a few ends in a weak caustic soda solution in order to remove the grease. The creaming of the linen yarns renders this step unnecessary, and also removes the gummy matter.

There are scores of these old methods for various shades which can be revived; but present-day dyers would take it very ill to turn back again to the methods of fifty or sixty years ago, although some firms are really working these old methods, especially on poor qualities of goods or on goods which are to have only a slightly dyed effect.

The following table, which are some of the old tests employed to discover the dyes used in some particular shade, may prove interesting reading:

Blues.—A dyeing is treated in a solution of weak hydrochloric acid.

1. Color changes to red or orange. (Logwood.)

2. Color does not change.

Another part of the dyeing is treated with calcium chloride solution.

1. Color remains unchanged. (Prussian Blue.)

2. Color changes.

Another part is treated with caustic soda.

1. The substance is decolored. (Aniline blue.

2. It remains unchanged. (Indigo.)

Reds.—A part is treated with boiling soap solution.

1. The color is discharged. (Saffron.)

2. The color is slightly discharged. (Aniline Red.)

3. The color changes to yellow. (Cochineal.)

A part is treated with conc. sulphuric acid.

1. A cherry red is produced. (Brazilwood.)

2. An orange is produced. (Cochineal.)

3. The color remains unchanged. (Madder.)

Yellows.—If annotta is the coloring matter, the color changes to greenish blue in boiling conc. sulphuric acid.

Treat another part by boiling in stannous chloride.

1. The color remains unchanged. (Quercitron Bark.)

2. The color changes to orange. (Persian Berries.)

If a blood red is produced, on treating with potassium cyanide it indicates picric acid.

Violets.—A dyeing is boiled in calcium chloride solution.

1. It is unchanged. (Alcanna.)

2. It is decolorised. (Cochineal.)

3. It becomes a buff color. (Madder.)

By boiling another portion in citric acid, the color is brightened. (Aniline Violet.)

Greens.—Boil a portion in dilute hydrochloric acid.

1. The dyeing is colored blue, the liquor yellow. (Aniline Blue and Yellow.)

2. The liquid is blue. (Aniline Green from iodide.)

8. The substance is decolored. (Aniline Green.)

A logwood dye or the presence of logwood is detected by putting the dyed fibre into weak sulphuric acid, which renders the color brownish. If the acid used is neutralised with ammonia, the liquor assumes a blue logwood color, and if the discharged fibre is put into ammonia it will give a slate color.

These few tests, although of little or no commercial value nowadays, will, no doubt, be new reading to many of the present-day dyers, and they tend to show how our predecessors faced these problems when chemistry was in its infancy, and many of our now common indicators then an unknown substance.

No branch of the textile industry has been harder struck than canvas dyeing, as when the Belguim yarns were available these were for the most part water-retted fibres, and there was no trouble in getting goods a clear soured shade. All that was required was a weak sulphuric or hydrochloric acid bath. Since the war practically all the flax is Russian, except the Irish-grown, which does not nearly equal requirements. The Russian flax, being dew-retted, is not suitable for clear shades, with the result that, although every dyer has his own methods of clearing, the only satisfactory way is to cream the yarns, using the same means as for bleaching, and then dyeing the goods to the shade required. This results in a smaller output, more work being necessary at increased cost. Many shades are dyed in the starch in the padding mangle, for instance, light drabs with iron liquor and quercitron bark, the proportions being varied according to tone required.

Browns are dyed with cutch and chrome, and although these dyeing agents are in themselves very far from fast, when they are applied with the starch the quality of fastness is wonderfully strengthened, and in appearance the goods look quite as good as those dyed with aniline colors.

Imports of sumac for August aggregate 773,640 pounds, valued at $19,782, as against 635,395 pounds, valued at $17,750, during August, 1916.

Germany in Need of Potash

A report from abroad says that Germany's stocks of potash are exhausted, and manufacturers are unable to meet the demands of agriculturists. Owing to the shortage of labor and coal and the difficulties of transportation, production has almost ceased. Financial circles are apprehensive that Germany will have no potash to export when the war ends, which will prove a serious matter, as potash is the most important and valuable of all the so-called "compensation" products which the Germans have to offer, and the lack of it will greatly retard the betterment of the rate of exchange.

The Chemical Market

We are informed by an authority in the trade that the chemical market, taken as a whole, seems to be under the influence of or in the control of second hands.

The manufacturers seem to be practically out of the market. There is marked hesitancy in signing up on con-

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tracts for future delivery. The market for the week has maintained a steady level with the exception of a few products which showed a tendency to rise.

Perhaps this is due to the scarcity of some supplies and it is hoped that this difficulty will be overcome and that business will again be in the control of the manufacturer.

Caustic Soda

Much of the interest now shown in the chemical line seems to center on caustic soda.

There has been practically no activity in this commodity during the entire week.

The prices are slightly in advance of those of last week and this can, no doubt, be attributed to a shortage of supply. We are told that the same condition exists in soda ash and all of the other soda products.

There is marked activity among smaller dealers in the soda line but we fear that the materials they offer are somewhat deteriorated as the prices are rather low.

Notes of the Trade

The Miner-Edgar Company of Newark, chemicals, minerals, etc., has been incorporated under the laws of New Jersey with a capital stock of $100,000. Incorporators: Henry M. Miner, James C. Thornton and N. M. Goodlet, Jr., all of Newark.

A coke plant that will cost $10,000,000 and will give employment of 1,200 men will be erected at East St. Louis by the American Coke & Chemical Company of Chicago. The St. Louis Coke & Chemical Company, a subsidiary of the American Coke & Chemical Company, will build the plant on a location not yet selected. W. G. McGuire, secretary of the St. Louis company, says his company will undertake an innovation in the way of coking Illinois coal.

The Occidental Chemical Company was incorporated in Oakland, California, early this month for $35,000. This concern was formerly the California Chemical Company of Santa Barbara county, which produces potash from kelp. The directors of the corporation are: F. A. Williamson, George H. Morse, C. C. Watts, H. H. Collor and H. G. Tardy.

Word comes from Salem, Oregon, to the effect that a railroad will be constructed from Lakeview to the Alkali Lake section to facilitate the development of more than 1,000,000 tons of soda salts. Engineers employed by the Spreckles interests of California are confident that the project will be a success. The lake is situated about seventy miles north of Lakeview and is in the same region as Summer and Albert Lakes. The State has been attempting to develop the soda and potash deposits of this section for several years, but the cost of hauling material was too great to allow a selling profit in the open market. The establishment of a railroad, however, will greatly reduce the initial cost.

DICKS, DAVID CO., INC.

Manufacturers

Methyl Violets, Fuchsine and Soluble Blue

302 Broadway, N. Y.

Works: Newark, N. J. Chicago Heights, Ill.

Agents for Essex Aniline Co.

During the first quarter of 1917 Italy imported 257 tons of zinc oxide, valued at 230,000 lire. Of this amount 173 tons came from the United Kingdom. The Italian production of zinc oxide in 1915 amounted to 2,565 tons.

Exports of aniline dyes from Switzerland show a marked increase in value in 1916 as compared with those for the years preceding. The value of such exports for the past six years offer the following comparisons:

1916	52,000,000	francs
1915	29,000,000	"
1914	27,000,000	"
1913	25,000,000	"
1912	26,000,000	"
1911	25,000,000	"

Before the war, Germany sold in the Italian market about $125,000,000 worth of manufactured products a year and she has no intention of losing the market. Already her agents are booking orders secretly for delivery at the conclusion of peace and if the infant industries of Italy are not protected from the first great rush of German goods into the country, they will be annihilated. The Italian Government has taken the warning and is now working out a tariff plan.

John W. Herbert, one of the receivers for the Federal Dyestuff and Chemical Corporation, says the stockholders will vote in a few days on the offer of Davis & Durkin, Canada, to operate the plants of the company. He said that if the offer was not accepted it would mean that the mortgage underlying the $2,000,000 of notes would have to be foreclosed and that it is to the interest of all security holders that the deal go through.

The note holders' committee of which A. W. Krech, president of the Equitable Trust Co., is chairman has sent an expert to the plant of the Federal Company to investigate its value, capacity and the prospect of its continuing on a profitable basis. Concerning the offer to take over the operation of the plant representatives of the committee said recently that the committee could not officially act nor give formal expression of opinion until the plants had been entirely inspected.

Officials of the Government and the Brooklyn Union Gas Co., have reached an agreement for the immediate installation by the Government of apparatus at the company's plants for the reduction of toluol. It will be several months before the new plants will be operation and the company will co-operate with the Government in their installation. The toluol plants will be operated by the Brooklyn Union Gas Co., and the terms as regards price of the product, will be determined later.

The agreement is the result of the Government's need for toluol, used in the manufacture of the high explosive T. N. T., and its desire to have gas companies make toluol. This fact was disclosed at the recent hearing before the Public Service Commission on the change in gas standard from 22 candle power to a British thermal unit standard. Under the latter standard the companies can produce toluol as a by-product.

The Markleed Chemical Corp., Manhattan, has been incorporated with 3,000 shares preferred stock $100 each, 4,000 shares common no par value, active capital $220,000. Incorporators: L. H. Marks, H. M. Wise, H. C. Aron, 55 West 10th street.

It is reported that a company has been formed to finance a Swedish dyestuff manufacturing plant which hopes to compete with Germany at home and abroad.

Two years have been spent in experimenting and the movement is supported by many scientific and technical experts.

Well Known Color Man Now Associated With E. F. Drew & Co.

H. Gardner McKerrow, for the last two years associated with the Marden, Orth & Hastings Corporation in the establishment and management of the Textile Department, has severed his connection with that concern and is now associated in a similar capacity with E. F. Drew & Co., Inc., 50 Broad Street, New York City.

Mr. McKerrow will have the management of the Textile Department which

intends to go into the handling of the dyestuffs as well as mill chemicals and industrial oils, with which the name of Messrs. E. F. Drew & Co., Inc. is already associated and well known.

Special attention will be given to American dyestuffs and it is the intention of the department only to handle those colors which can be offered as being of type strength and quality.

Mr. McKerrow has been identified with the development of the American dyestuff industry through many channels, and is now the instigator of a movement which it is expected will result in the convention to be held in New York City in January next, at which it is hoped all the manufacturers of American dyestuffs will be represented, for the consideration of a proper means of standardizing American colors.

Mr. McKerrow will have associated with him, Mr. T. F. O'Keefe, formerly his assistant at Marden, Orth & Hastings Corporation, and who is also well known to the dealers and manufacturers of dyestuffs in this country.

Dyes From Pulp Waste

CHEMISTS WORKING TO USE SULPHITE PULP WASTE AS DYE SOURCE—CONVERSATION COST A FACTOR —U. S. AIDING

BY J. ROBINSON SILVER, JR.

With the present day demand for the development of all possible cources of dyestuff materials, the question of the utilization of sulphite pulp waste again comes to the front.

This waste product, formed in the manufacture of paper pulp from wood, has for some time presented an interesting problem to the research chemist. To date, the problem has been investigated more from the viewpoint of preventing the pollution of streams than of utilizing it as a commercial product. Investigations relative to such pollutions have brought forth a number of suggestions, with the result that to-day pulp waste is being used on a small scale as a substitute for glue, as a binder, as a mordant for wool, as a semi-waterproof size, and as an adhesive in core making. But the problem of utilizing this waste product for its organic compounds has yet to be worked out on a commercial basis.

When one considers the fact that three billion gallons of this liquid are discharged into the streams of this country every year (Forest Circular No. 120, U. S. Department of Agriculture) the magnitude of the loss due to the non-use of the pulp waste can be imagined. Germany, as early as 1894, offered a prize for the best method of overcoming the pollution of her streams by this refuse, with the result that much research work was done and many patents issued, but the prize is still unawarded, as most discoveries to date have failed on a large scale. Several mills in Germany, where restrictions regarding the pollution of streams are more strict than here, have had to close down due to their inability to convert this matter to a non-pollution substance or to make it of use in another industry. If this country should adopt similar restrictions how many paper pulp mills would be able to remain in operation?

Among the possible uses to which this pulp waste could be put is that of utilizing it as a source for dyestuffs. This possibility has been investigated to a certain extent by individual chemists, by several large pulp manufacturers, and by the various departments of the United States Government, but so far dye manufacturers have taken but little interest in the matter.

The value of the pulp waste to the dye manufacturer lies entirely in the utilization of its organic matter. Just what the composition of this matter may be is a question upon which many eminent chemists fail to agree. But we may accept with confidence the theory that wood is a ligus-cellulose, and is freed of the cellulose by the sulphite process, leaving a complex organic substance in the waste. This substance has been given the name "lignose," "lignin," and "lignone." It is upon the theory as to how this lignone may be combined with the inorganic groups present that opinions differ. On the basis of several of the theories advanced there are two possible methods of research immediately opened to the dye chemist, viz.:

1st. Fusion with sulphur and sodium sulphide to form a so-called sulphur dye.

2nd. "Coupling up" with an amine and nitrating the mixture.

Working on the first theory, for the

production of a sulphur dye or dyes from the pulp waste, some work has been done, with the result that several dyes of black and brown shades have been obtained. These dyes when tested have all proved to be fast.

Working from the second point of forming a nitro compound, a detailed research into the action with various amines has shown that colors ranging from light yellow to dark brown can be secured.

E. B. Phelps (in Water Supply Paper, No. 226, U. S. Department of the Interior) summarizes a number of experiments tried out during his investigations, but states that these products show little improvement over direct nitration of lignone without the addition of an amine. A subsequent investigation of a more complete list of amines has proved that several dyestuffs can be made, which, when after-treated with chrome or bluestone, prove to be very fast.

The question of the commercial success of such a proposition as the manufacturer of dyes from sulphite pulp waste, however, must be finally determined by the cost per pound of the finished product. In mills where the amount of water used is not restricted, the dilution of the waste is so great that the cost of evaporation alone would often exceed the cost of dyes now on the market. But at the same time if the waste steam of a mill were used, the evaporation could be carried out to a large extent with very little extra expense. In mills where the dilution is not so great, there is a very good opportunity to make use of present information, and to adopt it to local mill conditions, making either a sulphur dye or a direct dye as a by-product.

At the request of one of the largest pulp manufacturers, an investigation is now being carried on relative to the production of dyes from what is perhaps the largest waste product in the country; but the results of such special investigation have not as yet been published.—*The Color Journal.*

DYESTUFFS AND CHEMICALS THAT ARE ACTUALLY OBTAINABLE

The following is reproduced as a help to the consumer in purchasing reliable products and is listed free by the REPORTER.

SIZING SPECIALTIES CO.

Jersey City, New Jersey

We are in receipt of a letter from the president of this company in which he says, "For the past two years we have manufactured and can offer the following oil soluble colors."

Red
Orange
Yellow
Brown
Blue
Mahoganies

FRANK HEMINGWAY, INC.

115 Broadway, New York

This company sends us the following regarding their products of which they are the sole selling agents:

Butterworth Judson Corp.
Victoria Blue B
Victoria Blue Base
Crystal Violet
Crystal Violet Base

This company also represents the Ballardvale Chemical Co., who are manufacturers of Safranine.

ATLAS COLOR WORKS, Inc.

Manufacturers of

Indigotine
Natural and Synthetic
Indigo Extract
Indigo Paste
For Cotton

SALES OFFICE:
322 Ninth St., Brooklyn, N.Y.
WORKS:
Hamilton Ave. and Gowanus Canal
Brooklyn, N. Y.

National Aniline & Chemical Co., Inc.
244 Madison Avenue **New York**

THE LARGEST
MANUFACTURERS
OF
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AND
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BOSTON
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KANSAS CITY

FACTORIES:

BROOKLYN
BUFFALO
WAPPINGERS FALLS
MARCUS HOOK